United States
Department of
Agriculture

Soil
Conservation
Service

Spokane,
Washington

Water Supply Outlook for Washington

as of FEBRUARY 1, 1981 . . .

in cooperation with

Department of Ecology
State of Washington

GPO 1981 797-080

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W, Calgary, Alberta T3C 1A6.

Irrigators May Face a Water Shortage This Year

SNOW COURSE MEASUREMENTS MADE ON FEBRUARY 1, 1981, INDICATE THAT LOW FLOWS WILL OCCUR IN MANY STREAMS. STUDY THE ATTACHED WATER SUPPLY FORECAST CAREFULLY FOR STREAM FLOW AND/OR RESERVOIR STORAGE FIGURES THAT CONCERN YOUR AREA. KEEP IN TOUCH WITH YOUR IRRIGATION DISTRICT OR OTHER OFFICIALS FOR ESTIMATES OF THE SUPPLY AVAILABLE TO YOU. YOU MAY FIND YOU'LL NEED TO CHANGE CROPS, REDUCE PLANTED ACREAGE, ADJUST TIMING OF WATER APPLICATION, OR IMPROVE EFFICIENCY OF YOUR WATER DISTRIBUTION SYSTEM.

THESE ARE SOME OF THE EARLY DECISIONS AND PLANS YOU MAY HAVE TO MAKE:

CHANGE CROPS	Plant crops which require less water.
REDUCE ACREAGE	Reduce your crop acreage. This will help you make better use of your water as well as reduce the amount of seed and fertilizer you need to buy. Be sure to use cover crops to prevent wind erosion on land you don't irrigate.
CONSIDER ENERGY COSTS	Even if you are able to pump supplemental water, you should compare inflated energy costs with anticipated crop earnings. You may be money ahead to reduce acreage or change crops.
CHECK IRRIGATION SYSTEM	Check your irrigation systems carefully. Make certain that ditches have no water-wasting weeds or debris to slow delivery, sprinkler heads don't have leaks, pipes have tight connections, and pumps work properly. If new parts or equipment are needed, buy them early.
PLANT BEST LAND	Plant only your best land - it makes most efficient use of water. If your soil has been mapped, local Soil Conservation Service (SCS) personnel can guide you. If not, they can still give you general information.
TECHNICAL ASSISTANCE?	Maintain close contact with the Soil Conservation Service or your local Conservation District for the latest water supply forecast, and for soil information. SCS has water conservation pamphlets and other information that can help irrigators get by with less water.
COST-SHARE OR LOANS?	Maintain close contact with local offices of Agricultural Stabilization and Conservation Service (ASCS) and the Farmers Home Administration (FmHA). If a drought situation develops, funds might be made available for cost-sharing or loans to help you apply special water conservation practices.
CROPS, FEED, FERTILIZER, OR MARKETING QUESTIONS?	Contact your local Cooperative Extension Service office for crop selection alternatives, fertilizer recommendations, feed supply conditions, and marketing outlook.

SCS, ASCS, AND FmHA ARE LISTED IN THE PHONE BOOK UNDER "U.S. GOVERNMENT, AGRICULTURE, DEPARTMENT OF." COOPERATIVE EXTENSION SERVICE IS USUALLY LISTED WITH LOCAL COUNTY OFFICES.

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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SOIL CONSERVATION SERVICE
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Released by

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In Cooperation with

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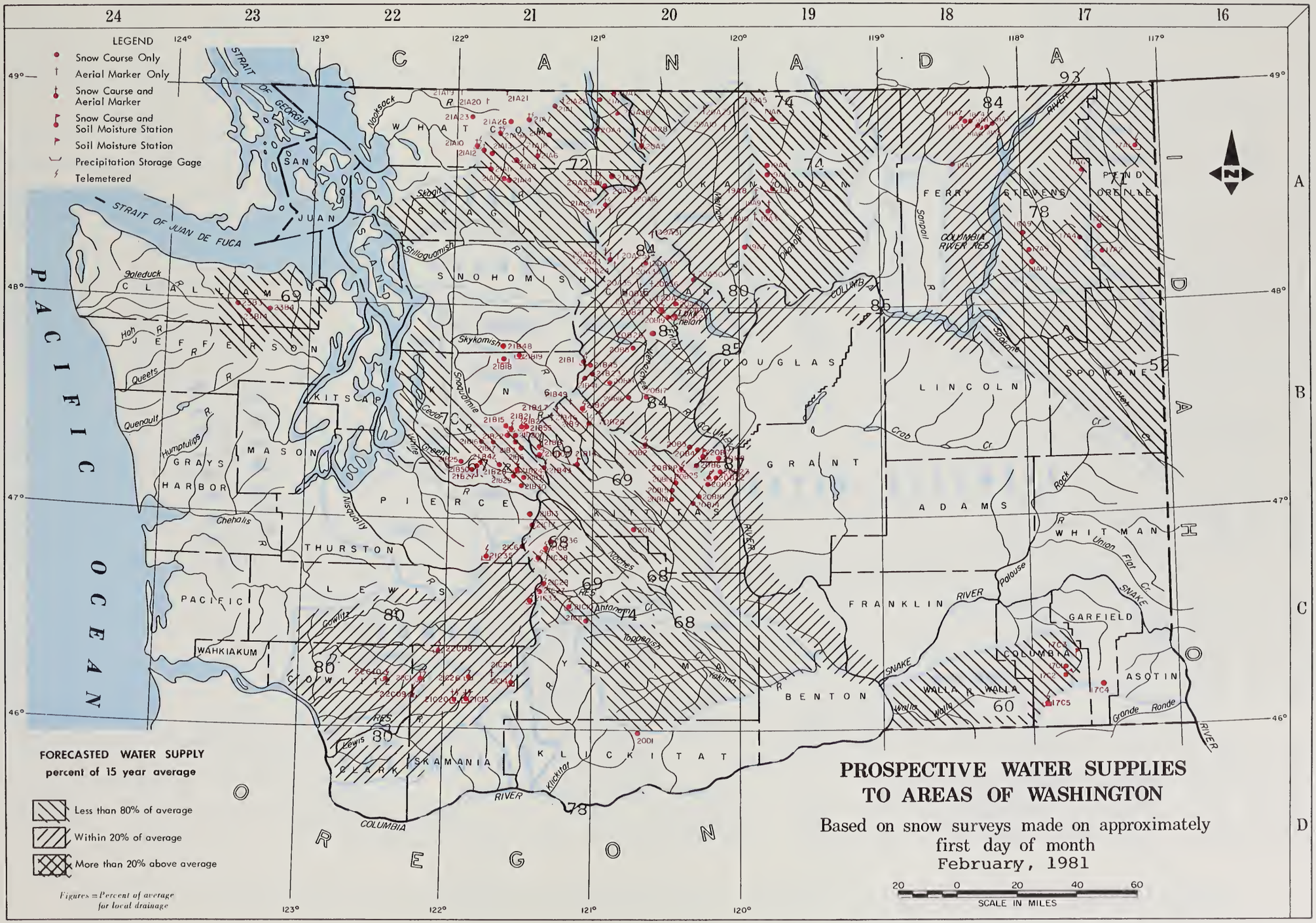

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UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1SP	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Raad	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Tauts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	2	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32c	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B15P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310

Colockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	40E	5700

Touchet River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cause	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lone Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Paradise Park (New)	21C35SP	13	15N	8E	5500

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13SP	30	18N	11E	6000

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19P	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeaut Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hazomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AF	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	31	29N	6W	4500

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

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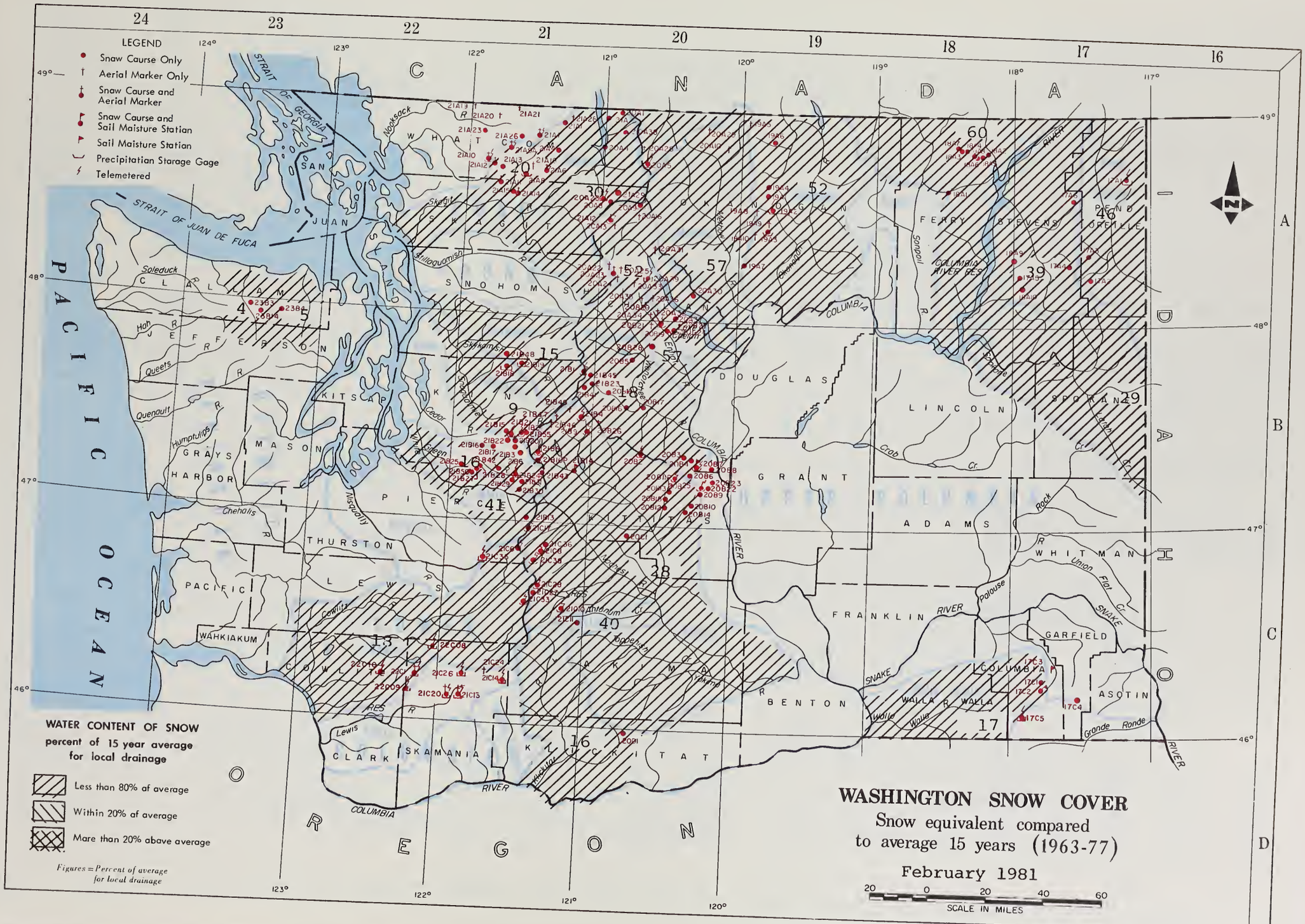

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Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2SP	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5SP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23SP	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12SP	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9SP	21	35N	17E	4780
Safety Harbor	20A30a	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Mirror Lake	20A39	30	31N	18E	5600
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2SP	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B15P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7SP	30	21N	20E	4400
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9SP	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38SP	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Coake Creek	20B10	17	19N	20E	4123
Fish Lake	21B4SP	28	24N	14E	3371
Green Lake	21C10SP	3	12N	13E	6000
Grouse Camp	20B11SP	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17SP	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28SP	2	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Touchet River					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Touchet No. 2	17C5SP	6	7N	40E	5530
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lewis River					
Lane Pine Shelter	21C26SP	8	9N	7E	3800
Marble Mountain	22C09SP	26	8N	5E	3200
Plains of Abraham	22C1SP	35	9N	5E	4400
Spencer Meadow	21C20SP	16	8N	7E	3400
Surprise Lakes	21C13SP	14	7N	8E	4250
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Pigtail Peak	21C33SP	11	13N	11E	5900
Potato Hill	21C14SP	36	10N	10E	4500
Ryan Lake	22C08SP	9	10N	6E	3280
Sheep Canyon	22C10SP	12	8N	4E	4920
PUGET SOUND DRAINAGE					
Nisqually River					
Paradise Park (New)	21C35SP	13	15N	8E	5500
White River					
Corral Pass	21B13SP	30	18N	11E	6000
Green River					
Airstrip	21B24P	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B5C	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10SP	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16P	31	22N	9E	2500
Mt. Washington	21B15P	8	22N	9E	3000
Rex River	21B17P	11	21N	9E	2400
South Fork Cedar	21B6P	24	21N	10E	3000
Tinkham Creek	21B20P	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2P	19	22N	11E	3625
South Fork Tolt	21B18P	26	26N	9E	1900
Olallie Meadows East	21B55SP	20	22N	11E	8700
Skykomish River					
Lake Elizabeth	21B19P	33	26N	10E	2900

NAME	NUMBER	SEC.	TWP	RANGE	ELEV.
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows (New)	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Volley	23B14	31	29N	6W	4500
Elwha River					
Hurricone	23B3	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Market Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

February 1, 1981

The outlook for the water supply in the State of Washington is not very good; and if it doesn't start improving VERY soon, it will turn out to be very bad. The snowpack that was measured on or about February 1, ranges from 4 percent of normal over on the Olympics to a high of 60 percent on the Kettle River Drainage. What snow that fell over the state in late November and December was pretty well washed out during the late December rain storms and nothing has fallen since. What is even worse, the long range weather forecast is for more of the same --- warm and dry. Up in British Columbia, the situation is not quite as bad; especially on the Upper Columbia and Kootenay. The southwestern portion of the Province is no better off than we are. Since most of the Columbia River water comes out of Eastern British Columbia, and is the major source of our power supply; we are not too bad off in that respect.

SNOW COVER

The snowpacks in the state are near the record lows set in 1977. Most of us can remember that year; so we will use it as a comparison throughout this report. By comparison, the situation does not look so bad. The February snow water equivalent when compared to average this year is 43 percent for the Upper Columbia Basin in Washington. The same time period for 1977 was only 20 percent. Along the Lower Columbia, it is 17 percent, as compared to 11 percent for 1977. On the West Slopes of the Cascades, the comparison is 22 percent for this year and 14 percent for 1977. Only two snow courses in the Olympics are compared; and although this year, they have only 4 and 5 percent of a normal snowpack - they were completely bare in 1977.

RESERVOIRS

As a result of the good rainfall we had in November and December, the storage reservoirs are all in good shape The overall picture is so good that some reservoirs are even being managed for flood control. While this might seem odd in a water-short year, it is good management practice. Of the five reservoirs in the Yakima Basin, only Lake Cle Elum has below normal storage. This is due to the court ordered release of fish water. Bumping Lake was full, but has been drawn down to prevent uncontrolled spilling. The power reservoirs are all in excellent shape.

PRECIPITATION

The rainfall this past fall and early winter has been a real hodge-podge. Most of the drainage divisions reported sub-normal precipitation in the fall. It started to improve in November and by the last of December, we were in flood conditions - warm and wet. This removed most of the snow that had occurred. Since January 1, it has been warm and dry and the outlook is for more of the same. Unless there is a dramatic turn around in the very near future, we are going to run short of water come late summer.

STREAMFLOW

River flows during January were generally high where the source of water was snow; and low where there was little snow left to melt off. The Similkameen River had the highest January flow in its 53-year record; and the Okanogan, the second highest in its 72-years - all this with rainfall near 50 percent of normal. The only other source of this water is melting snow. Generally speaking, Upper Columbia Basin runoff was well above normal; Lower Columbia, well below; and Puget Sound Drainages, normal to below. Forecasts have been prepared in conjunction with the National Weather Service, River Forecast Center; and show that water supplies will be adequate over most of the area IF we get normal rainfall and mountain snowfall for the rest of the year.If we don't, we will have to lower, even further, the forecast numbers developed. As in 1977, the best forecast is for the Columbia at Birchbank; and the worst - some of the Yakima forecast points. The bright side is that this year's numbers are 20 to 30 percent better than they were in 1977.

The Washington Snow Survey Program has acquired help in the form of an Assistant Snow Survey Supervisor. James K. Marron has transferred here from Denver, Colorado. Before Denver, he was located in Reno, Nevada, and in several SCS field offices in Colorado. Jim brings to the state an expertise in computer modeling and much experience in SNOTEL electronics. His presence will be a boon to the water users in the state.

STREAMFLOW FORECASTS - FEBRUARY, 1981

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet: % 15-yr. Avg.	Forecast period	1980	1979	1978	15-yr. Average 63-77
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM							
Columbia River	42500	93	Apr-Sept	40816	34484	44008	45502
at Birchbank 1/	33800	93	Apr-July	34085	27181	34030	36353
	24350	93	Apr-June	27623	19661	24082	26194
Columbia River	50800	85	Apr-Sept	61016	52769	66868	68012
at Grand Coulee 1/	48700	85	Apr-July	52320	44096	54559	57035
	37600	85	Apr-June	43871	35138	41585	44273
Columbia River	64100	87	Apr-Sept	66512	55298	72892	73935
bl. Rock Island Dam 1/	54100	87	Apr-July	57767	46700	60163	62462
	42200	87	Apr-June	48667	37453	46242	48489
Columbia River	81200	78	Apr-Sept	93170	76843	101055	103493
at The Dalles, OR 1/	69000	78	Apr-July	79931	65758	84815	88519
	55600	78	Apr-June	68316	55016	67353	71237
PEND OREILLE RIVER SYSTEM							
Pend Oreille River	11200	72	Apr-Sept	13271	11639	15581	15950
bl. Box Canyon	10600	72	Apr-July	12116	11095	14080	14690
	8500	72	Apr-June	10776	10217	11750	11760
KETTLE RIVER SYSTEM							
Kettle River	1550	84	Apr-Sept	2154	1265	2056	1846
nr. Laurier	1505	86	Apr-July	2066	1211	1877	1754
	1360	86	Apr-June	1922	1137	1686	1588
Colville River	105	78	Apr-Sept			138	134
at Kettle Falls	97	79	Apr-July			125	123
	90	78	Apr-June			117	115

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Fore cast period	Seasonal Streamflow in Thousands of Acre-Feet 1980	1979	1978	15-Yr. Average 63-77
SPOKANE RIVER SYSTEM **							
Spokane River	1500	52	Apr-Sept	2214	2809	2427	2910
at Post Falls, ID 2/	1400	51	Apr-July	2046	2757	2330	2733
	1300	50	Apr-June	1904	2678	2119	2600
OKANOGAN RIVER SYSTEM							
Similkameen River	1120	74	Apr-Sept	1476	870	1505	1517
nr. Nighthawk	1060	75	Apr-July	1388	809	1365	1417
	920	77	Apr-June	1245	726	1170	1192
Okanogan River	1270	74	Apr-Sept	1551	911	1690	1719
nr. Tonasket	1175	75	Apr-July	1423	830	1500	1565
	980	75	Apr-June	1240	738	1286	1305
METHOW RIVER SYSTEM							
Methow River	810	80	Apr-Sept	996		1174	1011
nr. Pateros	750	80	Apr-July	934		1058	937
	630	80	Apr-June	811		876	791
CHELAN RIVER SYSTEM							
Chelan River	1050	85	Apr-Sept	1113	753	1335	1237
at Chelan 3/	920	85	Apr-July	1014	663	1164	1080
	720	86	Apr-June	854	553	906	834
Stehekin River	740	84	Apr-Sept		566	888	883
at Stehekin	620	83	Apr-July		477	750	744
	470	84	Apr-June		387	563	557
Entiat River	200	83	Apr-Sept		134	295	241
nr. Ardenvoir	180	83	Apr-July		120	268	218
	150	86	Apr-June		104	275	174
WENATCHEE RIVER SYSTEM							
Wenatchee River	1100	85	Apr-Sept			1311	1297
at Plain	1010	87	Apr-July			1171	1156
	800	89	Apr-June			945	903
Wenatchee River	1480	84	Apr-Sept	1516	1204	1755	1767
at Peshastin	1300	82	Apr-July	1399	1110	1576	1587
	1050	84	Apr-June	1208	969	1275	1250
Stemilt Basin	115*	83	May-Sept				138*
nr. Wenatchee							
Icicle Creek	290	78	Apr-Sept				371
nr. Leavenworth	275	80	Apr-July				342
	225	81	Apr-June				279

* Thousands of Miners' Inches.

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1980	1979	1978	15-yr. Average 63-77
YAKIMA RIVER SYSTEM							
Yakima River	100	69	Apr-Sept	115	124	114	145
nr. Martin 4/	90	68	Apr-July	103	114	101	133
	80	70	Apr-June	95	101	93	114
Yakima River	675	69	Apr-Sept	792	714	808	975
at Cle Elum 5/	625	71	Apr-July	716	683	696	883
	540	72	Apr-June	646	599	614	751
Yakima River	1475	68	Apr-Sept	1833	1388	1977	2168
nr. Parker 6/	1300	67	Apr-July	1733	1287	1691	1954
	1100	65	Apr-June	1610	1179	1487	1693
Kachess River	90	71	Apr-Sept	111	101	98	126
nr. Easton 7/	85	71	Apr-July	105	95	91	119
	75	72	Apr-June	91	88	84	104
Cle Elum River	350	73	Apr-Sept		348	417	479
nr. Roslyn 8/	325	75	Apr-July	350	326	372	435
	275	77	Apr-June	314	292	318	358
Bumping River	100	68	Apr-Sept	129	99	119	146
nr. Nile 9/	90	68	Apr-July	120	92	108	133
	75	71	Apr-June	111	82	93	106
American River	85	67	Apr-Sept			111	127
nr. Nile	75	65	Apr-July			93	116
	65	68	Apr-June			84	95
Tieton River	175	69	Apr-Sept	224	179	228	252
at Tieton Dam 10/	145	68	Apr-July	192	148	188	212
	115	68	Apr-June	166	120	148	168
Naches River	610	68	Apr-Sept	729	574	721	894
nr. Naches 11/	550	68	Apr-July	694	528	657	807
	450	60	Apr-June	638	478	564	680
Ahtanum Creek	35	74	Apr-Sept			48	47
nr. Tampico 12/	30	71	Apr-July			43	42
	26	70	Apr-June			37	37

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	% 15-yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1980	1979	1978	15-yr. Average 63-77
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	10.50	60	Apr-Sept			12.11	17.50
at Walla Walla	10.00	58	Apr-July			11.99	17.33
	10.00	58	Apr-June			11.91	17.15
Lewis River	1040	80	Apr-Sept	1001	974	904	1301
at Ariel 13/	900	80	Apr-July	883	839	610	1131
	800	80	Apr-June	798	755	515	995
Cowlitz River							
bl. Mayfield Dam	1700	80	Apr-Sept	1626		1635	2125
	1500	81	Apr-July	1432		1348	1853
	1250	80	Apr-June	1275		1150	1552
Cowlitz River	2210	80	Apr-Sept	1976	1985	2232	2767
at Castle Rock 14/	1900	79	Apr-July	1852	1746	1835	2401
	1600	79	Apr-June	1649	1537	1581	2028
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	110	69	Apr-Sept			152	160
nr. Sequim	90	69	Apr-July			115	130
	70	73	Apr-June			83	96
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1900	75	Feb-Aug		1785	2204	2532
at Newhalem 15/	1700	72	Apr-Sept		1648	2115	2356
	1400	71	Apr-July		1359	1690	1972
	1050	71	Apr-June		1102	1285	1485
GREEN RIVER SYSTEM							
Green River	315	67	Feb-Sept			294	467
bl. Howard Hanson Dam 16/							
CEDAR RIVER SYSTEM							
Cedar River							
nr. Cedar Falls	65	70	Apr-Sept				93

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses Average	1981 Snow Water Expressed as percent of 1980	1979	1963-77 Avg.	1977 as percent of Average
UPPER COLUMBIA BASIN					
Pend Oreille	9	56	88	46	26
Kettle	15	104	112	60	43
Colville	4	48	63	39	14
Spokane	6	40	29	29	29
Okanogan	28	80	125	52	33
Methow	6	67	276	57	15
Chelan	5	60	86	52	16
Entiat	11	76	148	57	10
Wenatchee	9	23	27	18	12
Yakima	24	33	46	28	4
Ahtanum	2	32	58	40	-
LOWER COLUMBIA					
Mill Creek	3	24	19	17	19
Klickitat	1	21	38	16	-
Cowlitz	2	20	42	18	9
PUGET SOUND					
White	2	46	65	41	11
Green	8	25	23	16	8
Snoqualmie	1	19	14	9	2
Skykomish	2	20	23	15	17
Skagit	12	40	58	30	25
Baker	9	34	50	20	18
OLYMPIC PENINSULA					
Elwha	1	12	9	4	-
Dungeness	1	8	9	5	-

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1981	1980	1979	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	180.0	54.9	13.7	145.3
Columbia	Franklin D. Roosevelt Lake	5232.0	4726.9	3063.5	4228.4	3698.2
Columbia	Banks Lake	714.9	120.8	690.9	690.8	619.4
Okanogan	Conconully Reservoir	13.0	6.8	3.0	9.7	6.2
Okanogan	Conconully Lake	10.5	10.4	8.3	10.5	7.6
Chelan	Lake Chelan	676.1	481.3	255.7	276.5	294.2
		YAKIMA				
Yakima	Keechelus Lake	157.8	113.8	67.4	66.2	97.6
Kachess	Kachess Lake	239.0	179.2	67.9	178.0	173.4
Cle Elum	Lake Cle Elum	436.9	220.9	361.7	65.6	259.7
Bumping	Bumping Lake	33.7	17.0	9.2	3.7	7.8
Tieton	Rimrock Lake	198.0	170.5	54.6	138.7	118.0
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1293.9	845.8	760.5	1012.6
Skagit	Diablo Reservoir	90.6	87.6	87.9	86.8	84.2
Skagit	Gorge Reservoir	9.8	7.9	7.1	8.3	7.9

1/ Based on Active Storage

* 15-yr. Average 1963-1977

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1980 2/ Observed	FALL Departure	WINTER Nov. 1980 - Jan. 1981 2/ Observed	WINTER Departure
Columbia in Canada	3.76	-1.26	10.60	-0.53
Pend Oreille - Spokane	2.75	-1.29	10.44	-1.74
Northeastern Washington	2.37	-0.11	5.32	-1.39
Southeastern Washington	2.33	-0.18	6.21	-0.85
Central Washington	1.60	+0.63	3.95	+0.20
North Central Washington	1.45	-0.14	4.49	-0.35
Northwest Slope Cascades	7.35	-5.86	35.81	-2.12
Southwest Slope Cascades	3.89	-4.79	25.31	-3.60

Northeastern Washington - Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages.

Central Washington - Yakima, Wenatchee, and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

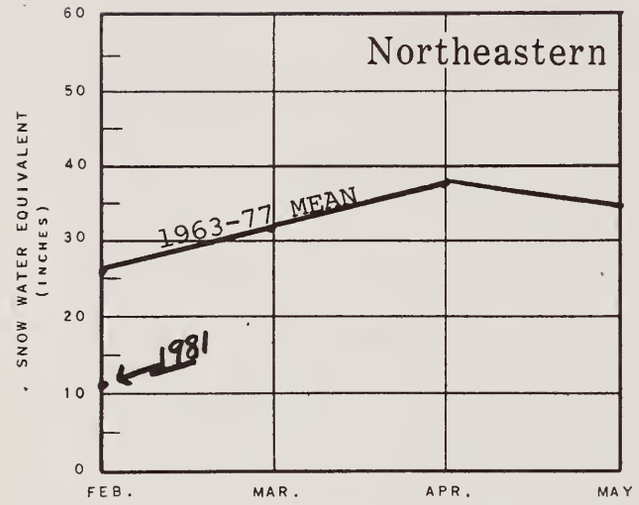
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

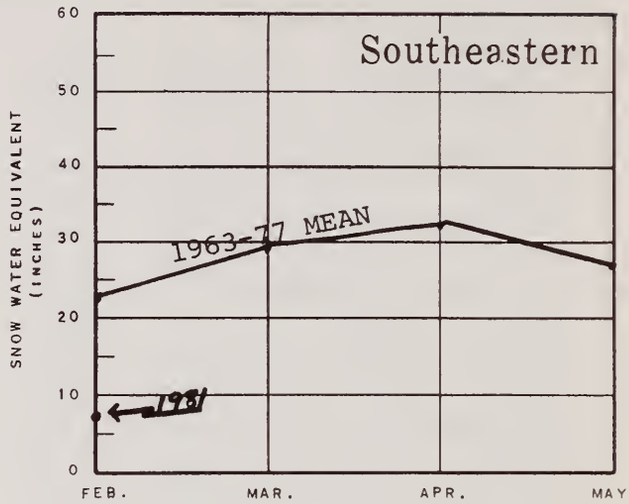
2/ - Departure from 15-year (1958-72) drainage division average.

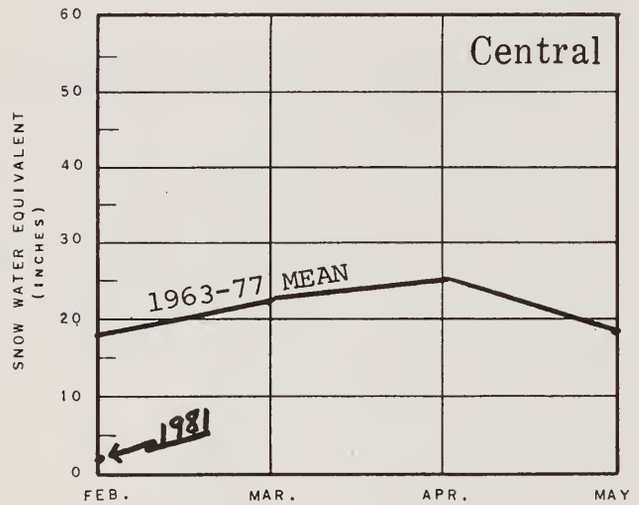
WASHINGTON SNOW COVER

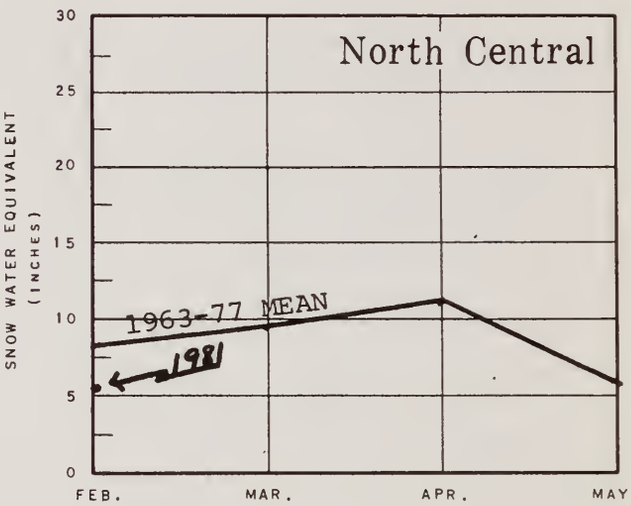
1981

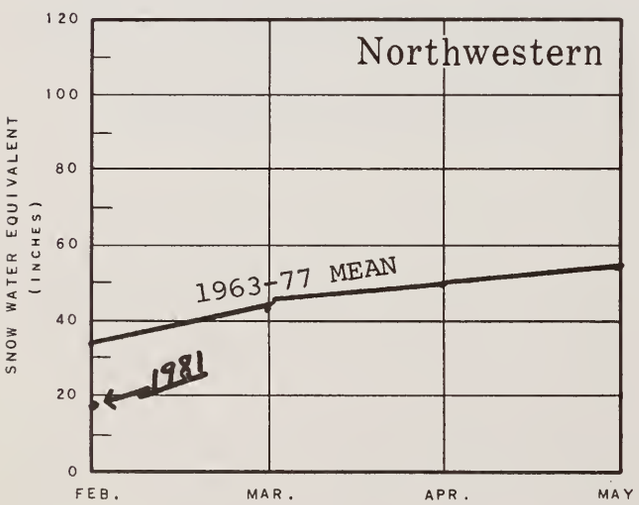
DRAINAGE AREAS

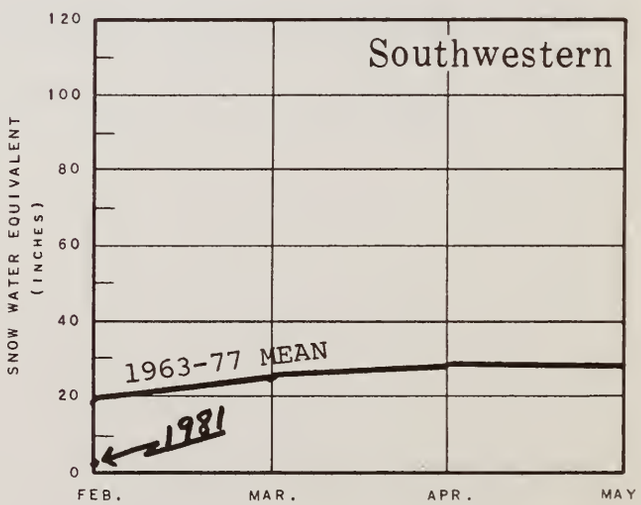








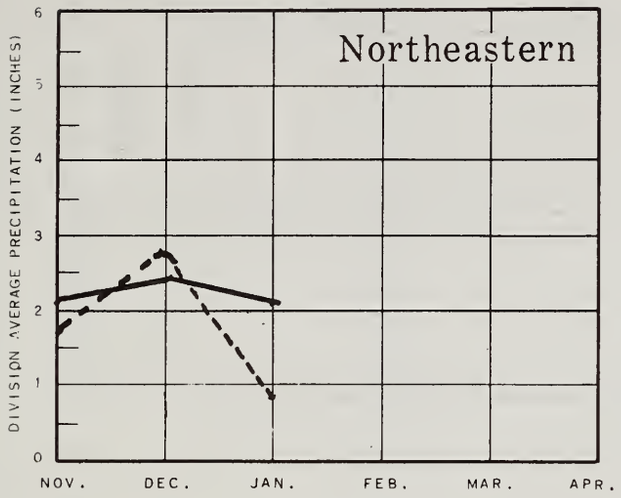


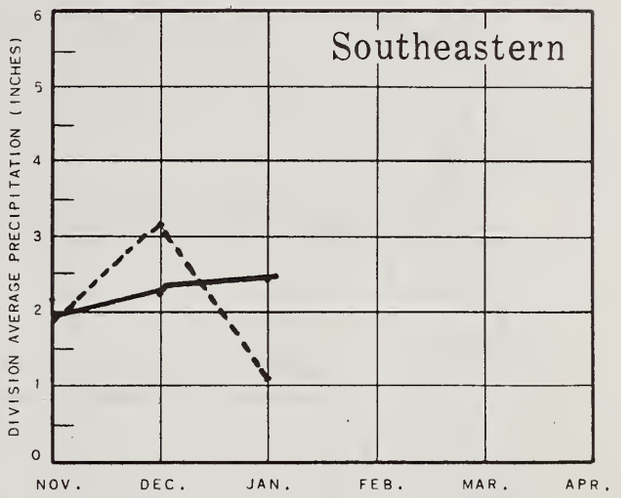


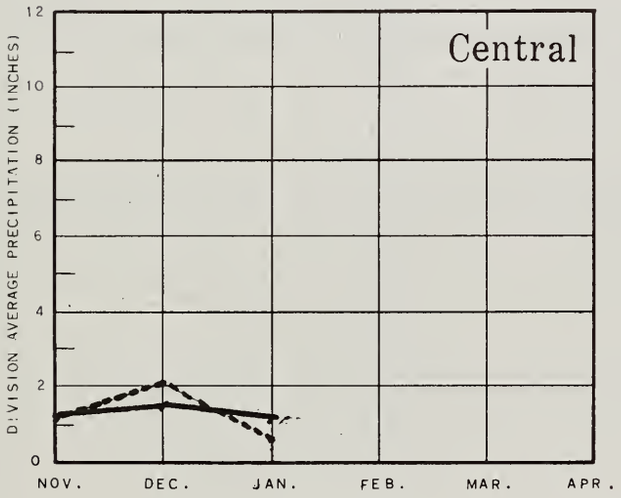
WASHINGTON VALLEY PRECIPITATION

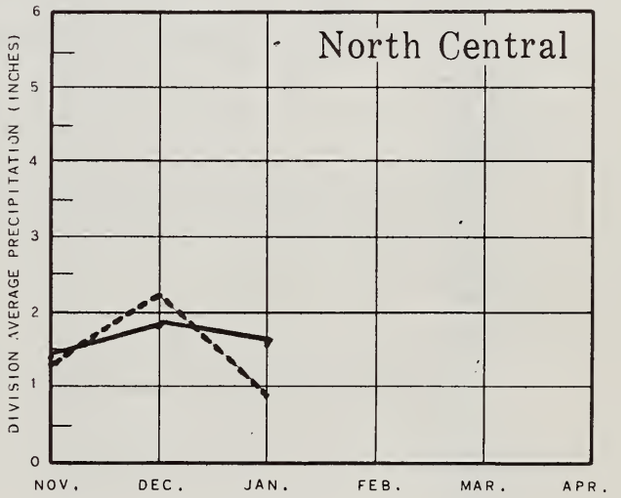
1981

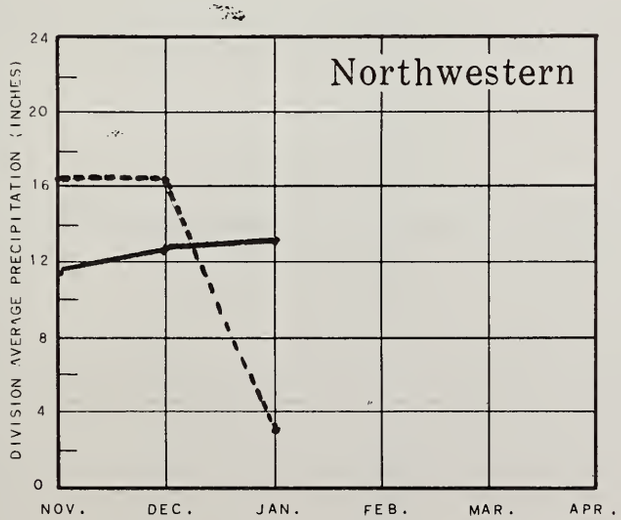
DRAINAGE AREAS

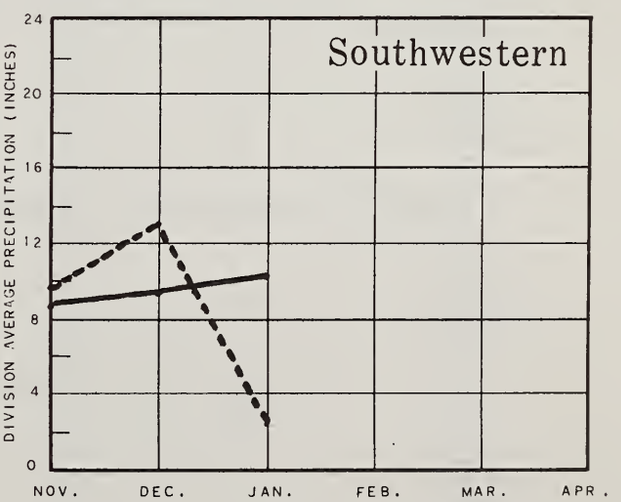










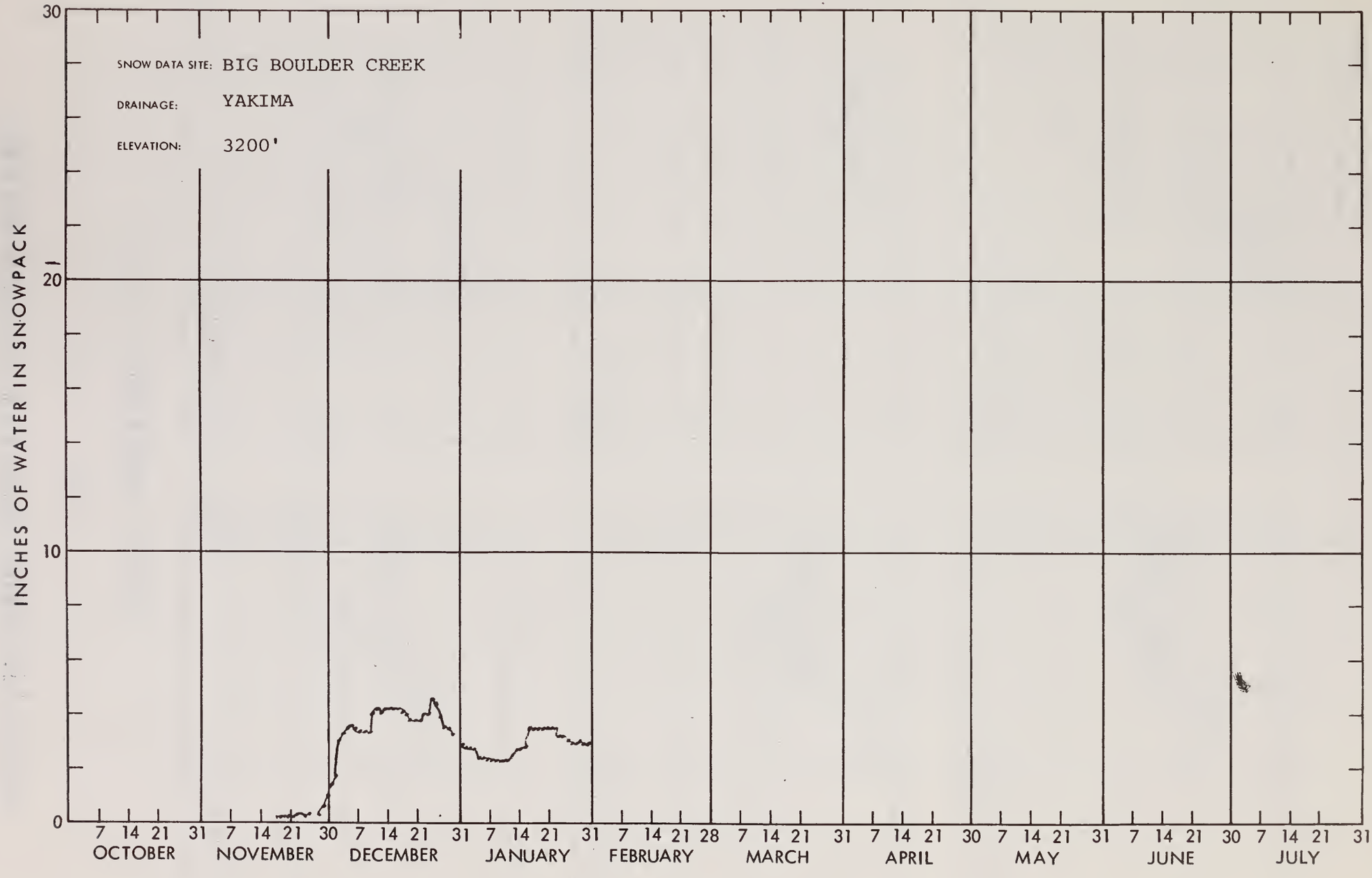


Average: ——————
1981 : - - - - - - -

Preliminary Analysis by National Weather Service

M7-L-22028H

WSFB-X13B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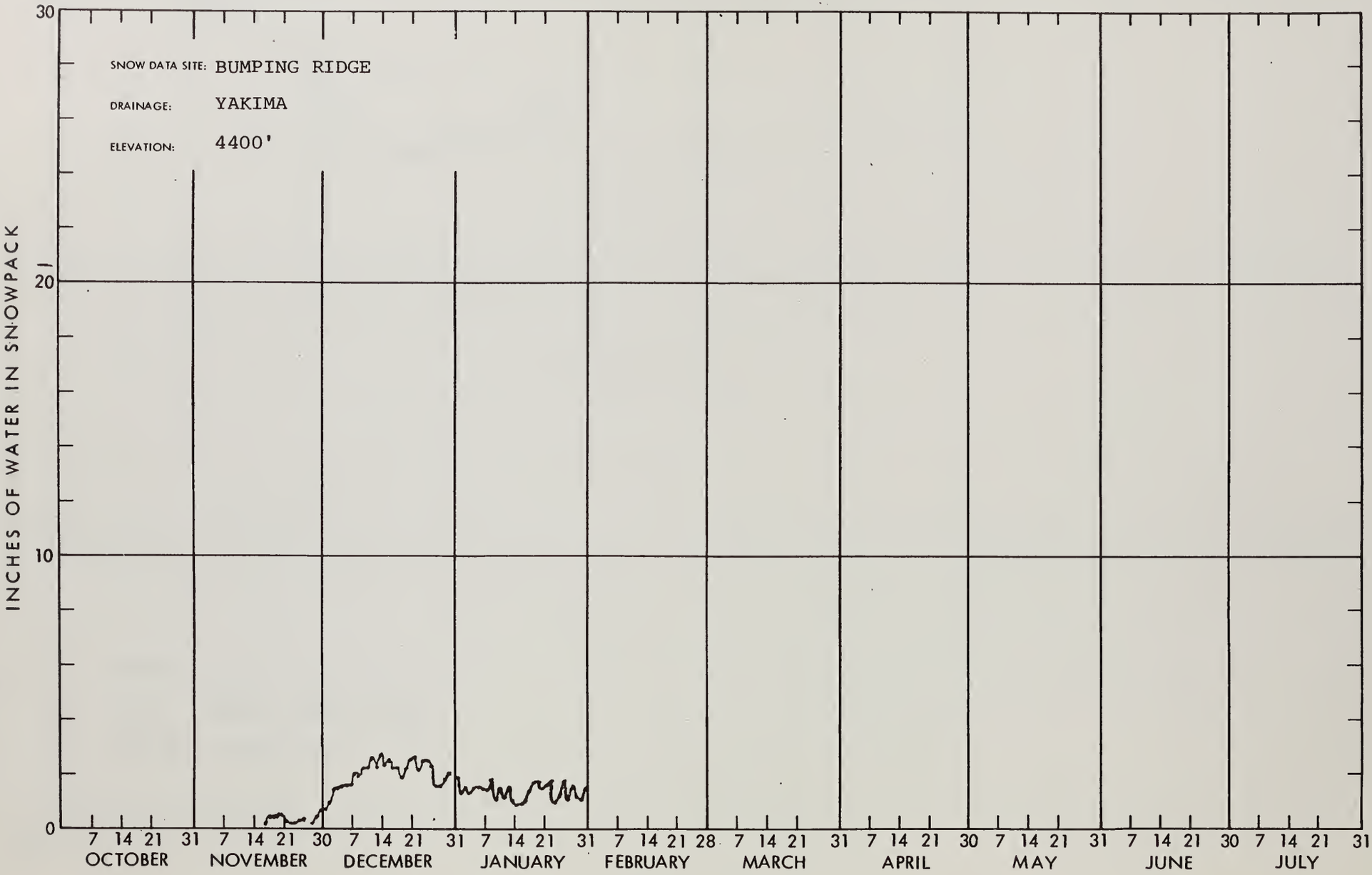
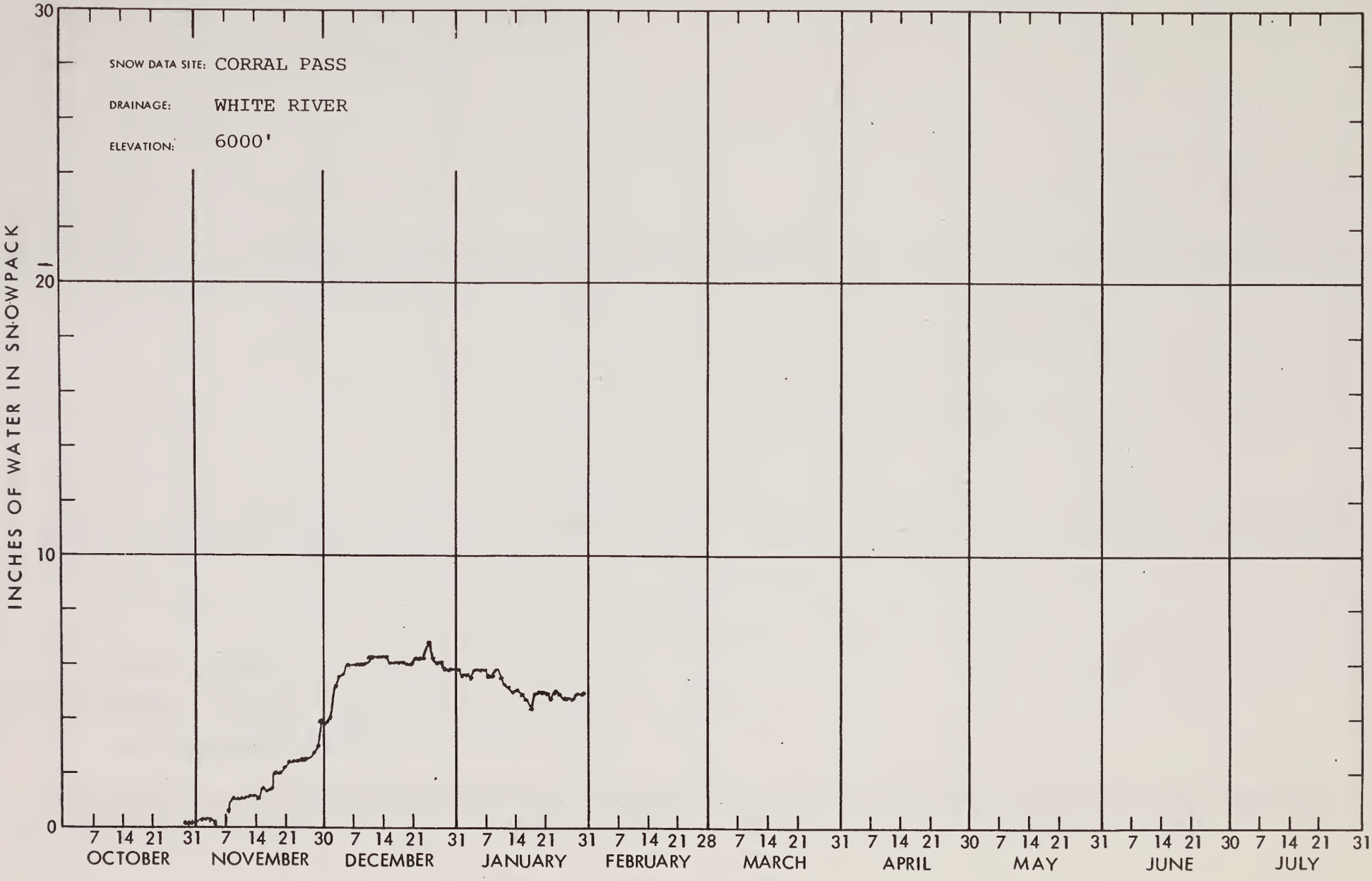
DRAINAGE: YAKIMA
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

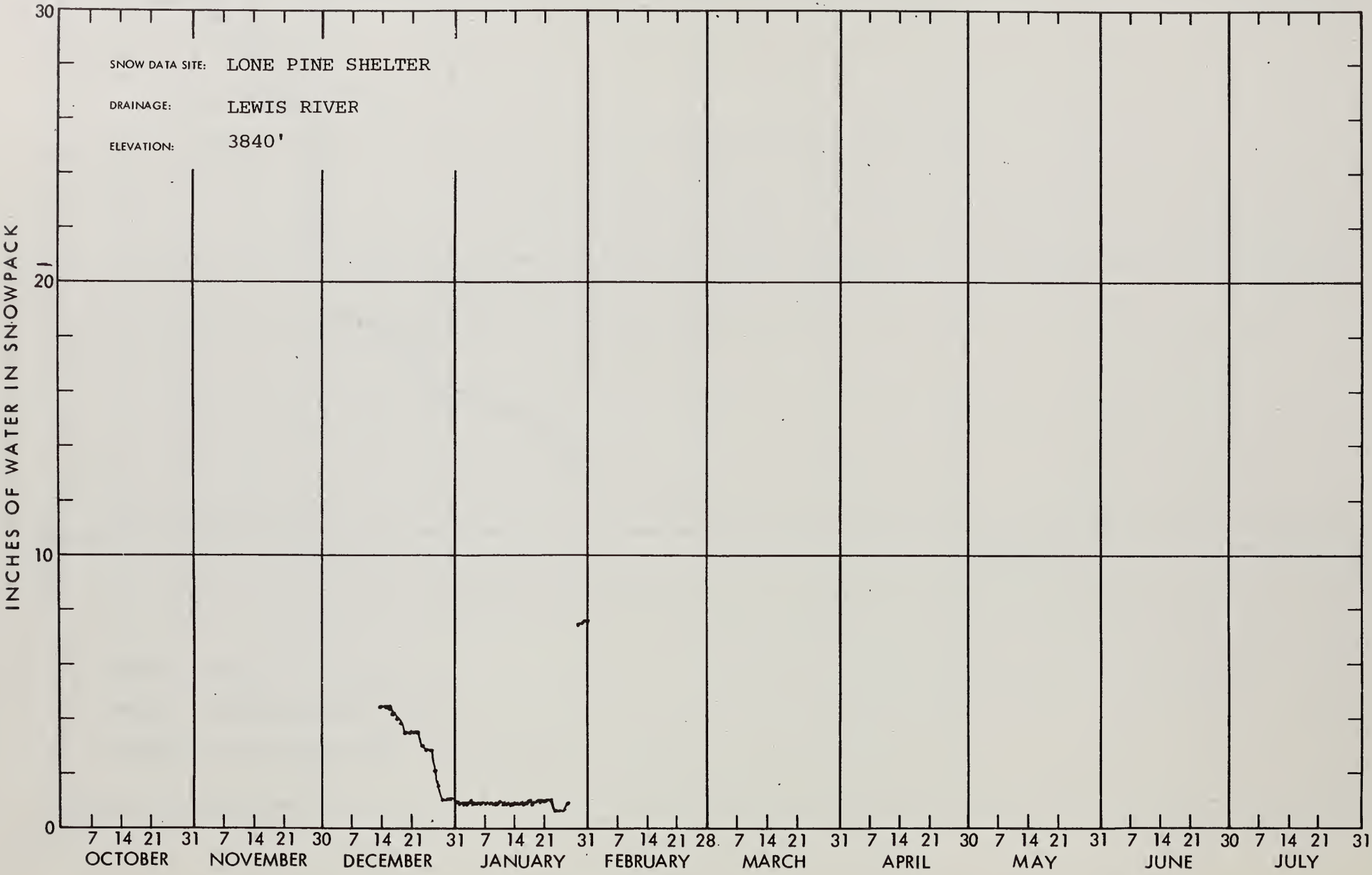
WSFB-X138


SNOW DATA SITE: BUMPING RIDGE
DRAINAGE: YAKIMA
ELEVATION: 4400'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X 138


SNOW DATA SITE: CORRAL PASS
DRAINAGE: WHITE RIVER
ELEVATION: 6000'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13B


SNOW DATA SITE: LONE PINE SHELTER
DRAINAGE: LEWIS RIVER
ELEVATION: 3840'
INCHES OF WATER IN SNOWPACK
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20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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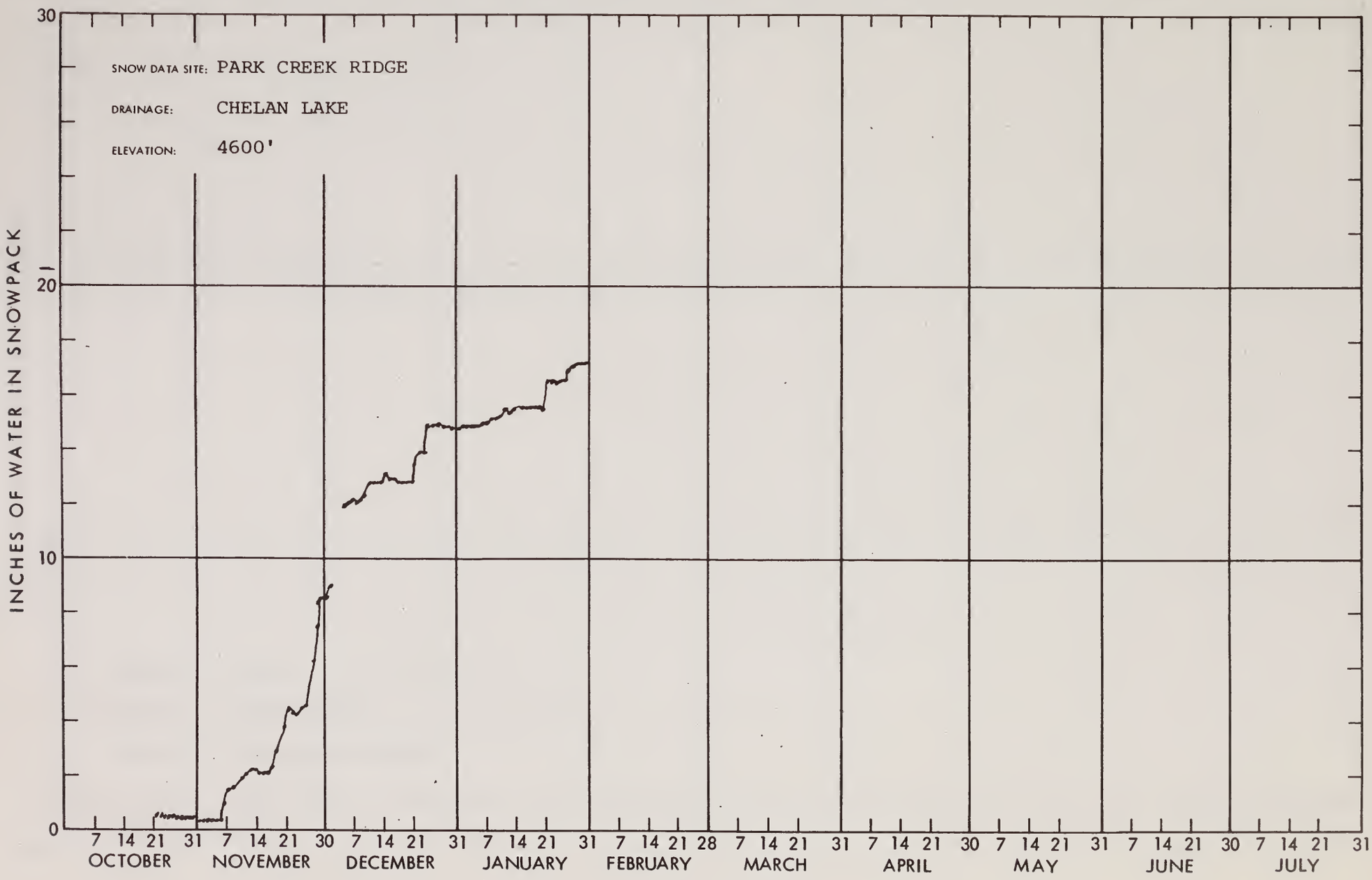
JUNE
JULY

WSFB-X 138


SNOW DATA SITE: PARK CREEK RIDGE
DRAINAGE: CHELAN LAKE
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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JANUARY
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MARCH
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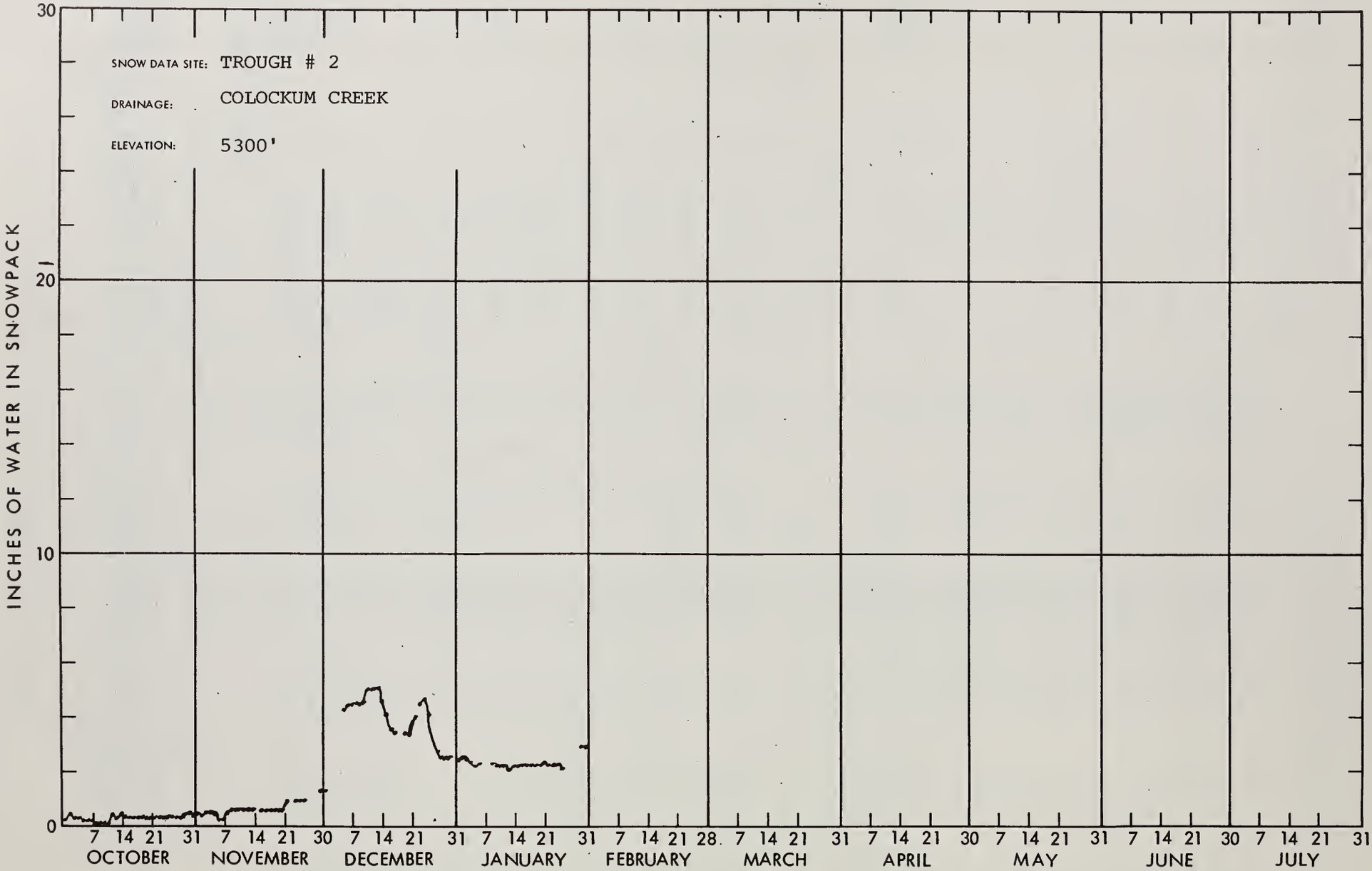
JUNE
JULY

WSFB-X13B


SNOW DATA SITE: TROUGH # 2
DRAINAGE: COLOCKUM CREEK
ELEVATION: 5300'
INCHES OF WATER IN SNOWPACK
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20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	1977	Avg. #
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Benton Meadow	16A02	2344	12/30	0	0.0	1.1	1.5	2.7
			1/30	0	0.0	3.9	1.7	5.2
Benton Spring	16A03	4900	12/30	19	6.3	5.9	2.4	7.5
			1/30	16	5.5	10.9	3.2	13.2
Chewelah	17A04	4925	1/31	15	5.7	9.4	2.0	11.5
Heart Lake Trail	14C10	4800	1/1	9	3.1	6.3	-	9.7
			2/1	15	3.6	13.6	-	12.8
Hoodoo Basin	15C10	6000	1/6	48	16.0	18.8	-	22.2
			2/1	57	20.4	30.0	-	39.7
Hoodoo Creek	15C01	5900	1/6	42	15.2	14.8	-	19.8
			2/1	47	16.6	27.3	-	37.2
Lookout	15B02	5250	1/2	25	8.0	10.4	4.8	13.8
			1/30	32	10.8	20.0	7.0	25.6
Nelson	2D04-Can	3050	12/31	28	10.0	5.9	2.6	7.2*
			1/28	27	9.4	8.8	3.1	11.0*
Schweitzer Bowl	16A06	4500	12/31	30	10.2	11.0	5.0	13.8
			2/1	Plowed Out		18.5	7.0	23.1
Schweitzer Ridge	16A05	6100	12/31	48	19.2	19.7	5.8	21.3
			1/27	49	20.1	38.4	9.8	34.2
Winchester Creek	17A03	2970	1/27	6	1.2	6.8	1.7	8.6
KETTLE RIVER								
Barnes Creek	2B06-Can	5300	12/30	33	9.7	6.5	-	8.3*
			1/31	31	10.0	7.7	10.0	13.5*
Big White Mtn.	2E03-Can	5500	2/1	29	8.1	8.3	7.2	13.7*
Boulder Road	18A02	1450	12/22	12	2.4	0.8	0.9	2.3
			1/29	3	1.2	1.2	1.5	3.9
Butte Creek	18A03	4070	12/22	20	3.3	2.8	1.5	4.0
			1/29	17	3.8	4.2	2.4	6.9
Cabin Creek	18A08	3170	12/22	18	3.7	2.0	1.3	3.7
			1/29	18	4.8	3.7	1.7	9.3
Carmi	2E02-Can	4100	2/1	11	2.4	2.2	2.2	5.1*
Farron # 1	2B02-Can	4000	1/29	23	6.7	7.2	2.5	9.4*
Farron # 2	2B02A-Can	4000	1/29	24	7.0	7.6	2.5	8.3*
Goat Creek	18A04	3595	12/22	16	3.5	2.1	1.3	3.5
			1/29	15	3.7	3.8	2.0	5.6
Monashee Pass	2E02-Can	4500	12/30	24	7.3	3.3	4.2	6.3*
			1/31	22	7.6	4.8	6.8	9.4*
Snow Caps Creek	18A05	2150	12/22	14	3.0	1.2	1.0	2.5
			1/29	7.9	2.6	2.6	1.5	4.1

\# Average based on 1963-1977 Average
* Average for years of record

USDA-SCS-PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	1977	Avg. #
KETTLE RIVER (Cont.)								
Snow Caps Trail	18A06	2720	12/22	16	3.2	1.7	1.1	2.9
			1/29	12	3.8	3.6	1.5	4.8
Summit G.S.	18A07	4600	12/22	13	2.8	1.9	1.1	3.5
			1/29	10	2.2	3.6	1.6	5.9
Trapping Creek Lower	2E05-Can	3050	2/1	8	2.0	1.8	2.2	4.3*
Trapping Creek Upper	2E04-Can	4450	2/1	16	3.4	4.3	4.4	7.3*
COLVILLE RIVER								
Baird	17A06	3215	1/31	6.9	3.1	4.0	2.4	5.5
Carlson	18A09	2885	1/31	Trace		2.7	0.6	3.7
Chewelah	17A04	4925	1/31	15	5.7	9.4	2.0	11.5
Stranger Mountain	17A05	5990	1/31	6	2.7	8.2	0.8	9.6
Togo	18A10	3370	1/31	4	1.9	9.7	0.5	8.6
SPOKANE RIVER								
Above Burke	15B08	4100	1/2	11	3.0	5.0	5.2	9.3
			1/30	16	4.8	10.2	7.0	16.4
4th of July Summit	16B03	3100	1/29	2.6	0.2	4.2	2.3	7.3
Lookout	15B02	5250	1/2	25	8.0	10.4	4.8	13.8
			1/30	32	10.8	20.0	7.0	25.6
Mosquito Ridge	16A04	5110	1/30	46	15.2	18.2	-	24.5
Sherwin	16C01	3200	1/2	0	0.0	1.8	1.9	5.5
			1/30	3.5	0.7	5.9	3.6	10.7
Sunset	15B09	5600	1/29	33	8.0	-	-	27.4
OKANOGAN RIVER								
Aberdeen Lake	1F01A-Can	4300	1/30	8.6	1.9	2.2	2.7	5.1*
Blackwall Peak	2G03-Can	6250	12/31	48	13.7	14.8	4.6	15.7*
			1/29	44	14.9	21.2	7.3	24.3*
Brenda Mine	2F18-Can	4800	12/30	19	4.3	5.0	2.4	6.8*
			1/28	21	5.4	7.2	3.3	9.8*
Brookmere	1C01-Can	3200	12/31	13	3.7	3.9	1.3	3.5*
			1/31	18	4.8	6.1	2.3	7.0*
Enderby	1F04-Can	6250	12/30	65	21.2	13.9	11.5	17.6*
			2/2	66	23.3	17.2	14.6	24.7*
Hamilton Hill	2G06-Can	4900	1/28	17	4.7	10.7	4.1	10.7*
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	32.7
Isontok Lake	2F11-Can	6300	12/28	3	0.8	2.6	1.4	4.1*
			2/1	5.9	1.2	3.5	1.7	6.2*
Lost Horse Mtn.	2G04-Can	6300	1/30	13	2.8	5.2	3.3	6.9*
Loup Loup	19A07	4650	1/28	17	4.4	6.9	0.4	7.4
McCulloch	2F03-Can	4200	12/29	11	2.8	1.5	1.1	3.3*
			1/25	8.3	2.6	2.5	2.5	4.9*

\# Average based on 1963-1977 Average

* Average for years of record

USDA SCS-PORTLAND OREGON 1973.

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	1977	Avg. #
OKANOGAN RIVER (Cont.)								
Missezula Mtn.	2G05-Can	5100	1/27	11	2.4	6.0	2.4	6.9*
Mission Creek	2F05-Can	6000	12/30	22	5.8	4.4	5.3	8.9*
			1/30	24	7.7	6.9	7.7	13.4*
Monashee Pass	2E01-Can	4500	12/30	24	7.3	3.3	4.2	6.3*
			1/31	22	7.6	4.8	6.8	9.4*
Mount Kobau	2F12-Can	5950	12/27	16	3.1	4.5	1.1	3.3*
			1/31	22	5.5	6.7	1.7	8.7*
Muckamuck +	19A09a	6390	1/30	26	7.0	-	0.0	11.4
Mutton Creek No. 1	19A01	5700	1/28	18	4.7	8.5	0.0	10.8
Mutton Creek No. 2SP	19A11SP	6000	1/28	-	4.5	5.7	-	New
Sunday Summit	2G01A-Can	4300	1/29	2	0.4	3.6	1.1	5.2*
New Penticton Res.#2	2F08-Can	5225	1/28	11	2.4	3.5	3.2	6.6*
Oyama Lake	2F19-Can	4400	1/29	8.7	2.2	2.0	2.6	5.4*
Paysayten +	20A28a	4300	1/30	40	12.0	10.5	3.6	14.2
Postill Lake	2F07-Can	4500	1/30	13	3.3	3.2	3.6	5.9*
Rusty Creek	19A03	4000	1/28	13	3.0	5.0	0.2	5.6
Salmon Meadows	19A02	4500	1/28	20	5.5	7.5	0.4	7.7
Silver Star Mountain	2F10-Can	6050	12/28	34	9.8	8.1	6.4	14.1*
			1/31	39	12.2	10.9	9.0	19.1*
Starvation Mountain +	19A10a	6750	1/30	37	10.0	12.5	0.0	13.8
Summerland Reservoir	2F02-Can	4200	12/27	14	3.5	4.1	1.9	4.9*
			1/31	15	3.5	5.6	2.5	7.6*
Touts Coulee	19A06	2845	1/29	9.6	2.6	1.6	0.5	3.1
Trout Creek	2F01-Can	4700	1/28	5.5	1.2	3.9	2.4	5.4*
Vaseux Creek	2F20-Can	4600	1/2	9.1	2.0	2.0	1.4	2.6*
			1/29	12	2.7	3.2	2.2	4.6*
White Rocks Mtn.	2F09-Can	6000	12/30	19	5.4	6.6	-	10.9*
			1/30	27	7.5	10.2	5.3	17.6*
METHOW RIVER								
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	32.7
Loup Loup	19A07	4650	1/28	17	4.4	6.9	0.4	7.4
Mutton Creek No. 1	19A01	5700	1/28	18	4.7	8.5	0.0	10.8
Mutton Creek No. 2SP	19A11SP	6000	1/28	-	4.5	5.7	-	New
Rusty Creek	19A03	4000	1/28	13	3.0	5.0	0.2	5.6
Salmon Meadows	19A02	4500	1/28	20	5.5	7.5	0.4	7.7
CHELAN LAKE BASIN								
Cloudy Pass +	20A22a	6500	1/30	68	20.4	-	5.6	30.0
Little Meadows +	20A24a	5275	1/30	46	13.8	25.2	6.3	30.7
Lyman Lake +	20A23A	5900	1/31	71	21.3	-	14.8	39.7
Mirror Lake	20A39	5600	1/30	52	14.0	-	-	New
Park Creek Ridge	20A12A	4600	1/30	50	15.5	26.3	7.0	36.9
Rainy Pass	20A09	4780	1/28	41	15.0	22.3	7.7	30.9

\# Average based on 1963-1977 Average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA-SCS-PORTLAND OREGON 1973.

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	1977	Avg. #
ENTIAT RIVER								
Blue Creek G.S. +	20B28a	5425	1/30	58	20.3	25.2	-	New
Brief	20B19	1600	1/28	7.8	1.3	5.9	1.0	7.0
Entiat Meadows +	20A33a	4540	1/30	66	23.1	30.6	-	40.0
Entiat River Trail +	20A34a	3325	1/30	34	9.5	14.5	-	20.0
Four Mile Ridge +	20B27a	6800	1/30	50	17.5	21.6	-	30.9
Fox Camp +	20A36a	6510	1/30	104	36.4	36.6	-	44.7
Pope Ridge	20B20	3450	1/28	24	6.6	11.7	1.0	15.2
Pugh Ridge	20A32a	6725	1/30	67	23.5	21.9	-	29.5
Shady Pass	20A37	6200	1/27	33	11.6	17.2	2.7	20.7
Snow Brushy +	20A35a	3910	1/30	47	13.2	20.3	-	30.5
Tommy Creek +	20B21a	4900	1/30	52	18.2	15.6	-	22.5
WENATCHEE RIVER								
Berne Mill Creek	21B23	3170	11/26	4	1.0	1.0	-	4.5
			12/12	21	5.8	5.4	-	7.8
			12/30	17	5.8	8.1	1.8	11.0
			1/14	16	6.1	14.8	2.2	16.2
			1/29	21	6.2	16.8	2.2	21.5
Berne Mill Creek New	21B41SP	3240	11/26	Trace		1.0	-	4.5
			12/30	6	1.9	5.9	1.6	11.6
			1/29	11	2.4	15.8	0.0	20.0
Blewett Pass No. 2	20B02	4270	12/30	0	0.0	4.5	4.6	6.5
			1/27	4.5	0.7	10.2	10.1	13.2
Chiwaukum G.S.	20B16	1810	11/26	Trace		1.0	-	1.5
			12/12	14	3.6	3.1	-	3.2
			12/30	10	1.7	4.4	1.0	4.8
			1/14	6.6	2.8	9.1	1.1	7.0
			1/29	14	3.4	8.9	2.0	9.5
Lake Wenatchee	20B05	1970	11/26	Trace		0.7	-	1.6
			12/12	15	4.0	3.5	-	3.6
			12/30	11	3.1	4.4	1.9	5.9
			1/14	7.6	2.9	9.3	2.4	9.5
			1/29	12	3.2	9.7	2.4	11.8
Leavenworth R.S.	20B17	1127	11/14	0	0.0	0.0	-	0.1
			11/26	0	0.0	0.4	-	0.7
			12/11	8.6	1.6	1.5	-	1.7
			12/28	3.8	1.3	0.9	0.5	3.1
			1/12	0	0.0	4.1	1.1	4.8
			1/29	2.8	0.5	3.8	0.8	5.9
Lyman Lake +	20A23A	5900	1/30	71	21.3	-	14.8	39.7
Merritt	20B18	2140	11/26	Trace		0.8	-	2.3
			12/12	17	4.7	2.4	-	4.8
			12/31	5.2	1.3	3.4	1.8	7.1
			1/14	5.2	2.3	8.8	2.0	11.2
			1/29	10	2.7	10.0	2.2	14.0

\# Average based on 1963-1977 Average

\+ Snow water equivalent estimated from aerial stadia observation

USDA-SCS-PORTLAND, OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	1977	Avg. #
WENATCHEE RIVER (Cont.)								
Stevens Pass	21B01	4070	11/14	8	1.7	-	-	3.6
			11/26	7.5	2.2	3.4	1.0	8.1
			12/12	29	8.8	9.8	2.3	14.7
			12/31	16	6.1	16.1	5.7	21.9
			1/14	16	6.8	25.3	6.9	30.1
			1/29	24	7.0	28.3	6.3	37.3
Stevens Pass Sand Shed	21B45	3700	11/26	2.1	0.5	1.4	-	6.4
			12/12	21	5.6	6.1	-	11.2
			12/31	6.4	2.2	10.0	2.9	15.3
			1/14	5.7	2.4	16.2	3.3	21.8
			1/29	12	2.8	19.0	2.3	26.8
COLOCKUM CREEK								
Colockum Creek Upper	20B22	5300	1/28	9.9	1.1	8.1	0.0	11.7
Colockum Creek Lower	20B23	4300	1/28	16	3.2	9.0	0.0	8.5
Trough # 2	20B25SP	5310	1/28	10	1.0	11.5	0.0	New
SQUILCHUCK CREEK								
Beehive Springs	20B03	4400	1/29	13	2.2	7.1	0.0	6.7
Scout-A-Vista	20B04	3400	1/29	17	3.2	7.0	0.0	6.9
STEMILT CREEK								
Jump Off	20B08	4450	1/28	9.2	1.2	8.4	0.0	7.1
Stemilt Slide	20B06	5000	1/28	14	3.3	11/1	0.0	11.2
Upper Wheeler	20B07	4400	1/28	7.6	1.0	9.1	0.0	8.4
YAKIMA RIVER								
Ahtanum R.S.	21C11	3100	12/29	7.2	2.8	2.8	0.0	3.2
			1/26	7.1	1.3	7.8	0.0	6.1
Blewett Pass No. 2	20B02	4270	12/30	0	0.0	4.5	0.0	6.5
			1/27	4.5	0.7	10.2	0.0	13.2
Bumping Lake Old	21C08	3450	12/12	20	4.1	-	0.0	4.4
			12/31	9.4	3.4	4.1	0.0	6.5
			1/15	7.9	2.8	7.9	0.0	10.4
			1/30	13	4.0	12.8	0.0	13.3
Bumping Lake New	21C36	3400	12/12	22	4.7	-	-	6.5
			12/31	14	4.6	5.3	0.0	8.3
			1/15	13	5.1	7.9	-	14.2
			1/30	19	5.6	14.6	0.0	16.8
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
Colockum Pass	20B09	5370	1/28	12	2.6	-	0.0	11.8
Cooke Creek	20B10	4123	1/28	4	0.5	-	0.0	5.3
Corral Pass	20B09	5370	2/2	26	9.0	20.0	4.2	-
Green Lake	21C10	6000	1/26	22	11.3	23.4	2.3	19.4

\# Average based on 1963-1977 Average
\+ Snow Water equivalent estimated from aerial stadia observation

USDA SCS-PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 6

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	1977	Avg. #
YAKIMA RIVER (Cont.)								
Grouse Camp	20B11	5385	1/29	19	5.5	-	0.0	12.3
High Creek	20B12	2930	1/29	6.9	1.7	-	0.0	5.5
Joe Lake +	21B46a	4624	2/1	27	8.4	27.9	13.4	41.8
Lake Cle Elum	21B14M	2200	12/8	18	3.0	-	0.0	2.4
			12/29	6.4	2.2	1.4	0.4	3.9
			1/12	2.6	1.0	4.4	0.8	7.1
			1/28	4.5	0.9	6.2	0.0	8.5
Lemah Creek +	21B47a	3327	2/1	39	12.0	23.7	6.1	31.0
Manashtash	20C01	3935	1/30	8.4	1.4	5.8	0.0	4.3
Morse Lake	21C17	5400	1/29	52	16.0	33.9	3.0	38.9
Nanum	20B13	3875	1/29	12	2.5	-	0.0	7.4
Olallie Meadows	21B02	3625	2/2	14	3.2	16.6	0.8	34.8
Satus Pass	20D01	4030	1/29	11	1.4	6.6	0.0	8.9
Stampede Pass SP	21B10	3860	12/2	28	3.1	2.9	-	7.5
			12/18	15	5.2	9.3	-	14.0
			1/2	16	5.9	10.3	3.6	17.4
			1/15	12	4.8	18.8	4.2	24.8
			2/2	23	6.7	18.3	2.0	31.5
Trail Creek	20B14	3360	1/28	2.9	0.4	-	0.0	2.9
Tunnel Avenue	21B08	2450	12/9	26	4.2	-	-	5.8
			12/29	9	3.1	5.2	1.0	8.4
			1/13	5.2	2.0	12.0	2.6	13.7
			1/28	12	2.2	13.0	1.2	17.8
Van Epps Pass +	20B26a	5925	2/1	59	18.3	22.6	10.3	39.4
Walters Flat	20B15	3360	1/29	12	3.1	-	0.0	6.5
Waptus Lake +	21B49a	3024	2/1	24	7.4	17.8	6.9	32.2
White Pass (E. Side)	21C28	4500	12/11	18	4.6	-	-	7.4
			12/30	5.3	2.6	4.4	-	10.5
			1/14	3.4	1.2	10.1	-	14.4
			1/29	12	3.0	15.2	0.0	18.4
AHTANUM CREEK								
Ahtanum R.S.	21C11	3100	12/29	7.2	2.8	2.8	0.0	3.2
			1/26	7.1	1.3	7.8	0.0	6.1
Green Lake	21C10	6000	1/26	22	11.3	23.4	2.3	19.4
L O W E R C O L U M B I A D R A I N A G E								
ASOTIN CREEK								
Spruce Springs	17C04	5700	1/26	14	5.1	13.8	2.4	18.2
MILL CREEK								
Homestead	17C01	4030	1/27	3.5	0.5	6.5	0.6	7.2
Martin Springs	17C02	4400	1/27	6.4	1.1	8.9	1.6	10.3
High Ridge	18D19	4150	1/28	26	7.5	16.1	4.0	17.7

\# Average based on 1963-1977 Average
\+ Snow water equivalent estimated from aerial stadia observation

USDA-SCS-PORTLAND, OREGON 1973.

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 7

SNOW			THIS YEAR			PAST RECORD		
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
NAME	Number	Elevation				Last Year	1977	Avg. #
KLICKITAT RIVER								
Satus Pass	20D01	4030	1/29	11	1.4	6.6	0.0	8.9
COWLITZ RIVER								
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
White Pass (E. Side)	21C28	4500	12/11	18	4.6	-	-	7.4
			12/30	5.3	2.6	4.4	-	10.5
			1/14	3.4	1.2	10.1	-	14.4
			1/29	12	3.0	15.2	0.0	18.4
P U G E T S O U N D D R A I N A G E								
WHITE RIVER								
Cayuse Pass	21C06	5300	1/7	33	14.3	-	4.3	34.4
			2/1	-	15.8	-	7.9	59.5
Corral Pass	21B13	6000	2/2	26	9.0	20.0	4.2	-
Morse Lake	21C17	5400	1/29	52	16.0	33.9	3.0	38.9
GREEN RIVER								
Airstrip	21B24	1800	12/1	4.6	0.4	0.0	-	0.6
			2/2	0	0.0	4.8	0.0	5.6
Charley Creek	21B25	1200	12/1	Trace		0.0	-	0.1
			2/2	0	0.0	1.5	0.0	1.3
Cougar Mountain	21B42SP	3200	2/2	12	2.4	9.3	0.0	17.3
Grass Mtn. No. 2	21B27	2900	12/1	8.4	1.3	0.0	-	2.1
			2/2	9.5	2.1	10.1	0.0	15.2
Grass Mtn. No. 3	21B28	2100	12/1	5.2	0.8	0.0	-	0.5
			2/2	1.2	0.6	3.8	0.0	5.2
Lester Creek	21B29	3100	12/1	18	2.1	3.2	-	2.7
			2/2	16	3.3	13.4	2.0	17.5
Lynn Lake	21B50	4000	12/1	11	1.5	0.0	-	2.7
			2/2	15	3.1	8.7	0.0	18.2
Sawmill Ridge	21B31	4700	12/1	21	2.9	3.7	-	5.6
			2/2	21	6.3	17.8	3.7	27.5
Snowshoe Butte	21B43SP	5000	2/2	21	6.6	29.1	3.5	40.8
Stampede Pass SP	21B10	3860	12/2	28	3.1	2.9	-	7.5
			12/18	15	5.2	9.3	-	14.0
			1/2	16	5.9	10.3	3.6	17.4
			1/15	12	4.8	18.8	4.2	24.8
			2/2	23	6.7	18.3	2.0	31.5
Twin Camp	21B30	4100	12/1	14	1.8	2.8	-	3.4
			2/2	13	2.7	13.1	1.7	18.4
SNOQUALMIE RIVER								
Olallie Meadows	21B02	3625	2/2	14	3.2	16.6	0.8	34.8

Average based on 1963-1977 Average

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	1977	Avg. #
SKYKOMISH RIVER								
Stevens Pass	21B01	4070	11/14	8	1.7	-	-	3.6
			11/26	7.5	2.2	3.4	-	8.1
			12/12	29	8.8	9.8	2.3	14.7
			12/31	16	6.1	16.1	5.7	21.9
			1/14	16	6.8	25.3	6.9	30.1
			1/29	24	7.0	28.3	6.3	37.3
Stevens Pass Sand Shed	21B45	4070	11/26	2.1	0.5	1.4	-	6.4
			12/12	21	5.6	6.1	-	11.2
			12/31	6.4	2.2	10.0	2.9	15.3
			1/14	5.7	2.4	16.2	3.3	21.8
			1/29	12	2.8	19.0	2.3	26.8
SKAGIT RIVER								
Beaver Creek Trail	21A04	2200	1/29	4.8	0.8	7.9	0.5	12.2
Beaver Pass	21A01	3680	1/29	14	3.7	15.5	1.4	24.4
Brown Top Ridge +	21A28a	6000	1/28	73	26.6	34.0	13.6	48.0
Cloudy Pass +	20A22a	6500	1/30	68	20.4	-	5.6	30.0
Devils Park	20A04	5900	1/28	52	18.4	26.8	8.7	34.0
Freezeout Creek Trail	20A01	3500	1/28	2.8	0.5	7.5	0.9	11.5
Freezeout Meadows New	20A38	5000	1/28	26	9.0	15.6	7.4	28.2
Granite Creek	21A29A	3500	1/29	16	3.9	10.2	3.1	16.3
Harts Pass	20A05A	6500	1/30	59	18.8	27.3	9.7	34.5
Klesilkwa	3D03A-Can	3700	2/2	0.8	0.1	5.0	0.4	9.7*
Lyman Lake	20A23A	5900	1/30	71	21.3	-	14.8	39.7
Meadow Cabins	20A08	1900	1/29	0.5	Trace	4.2	0.0	6.9
New Hozomeen Lake	21A30	2800	1/28	4.5	0.8	7.6	0.8	10.5
New Tashme	3D01A-Can	2500	2/1	3.9	0.7	5.7	2.0	8.5*
Rainy Pass	20A09	4780	1/28	41	15.0	22.3	7.7	30.9
Thunder Basin	20A07	4200	1/30	8.3	1.0	8.2	3.0	17.4
BAKER RIVER								
Dock Butte +	21A11A	3800	12/7	29	9.0	7.0	2.0	10.1
			1/2	10	4.0	12.0	4.0	28.7
			2/2	10	4.0	24.0	4.0	47.4
Easy Pass +	21A07A	5200	12/7	51	15.0	9.0	2.0	10.1
			1/2	46	18.0	22.0	10.0	32.8
			2/2	47	16.0	34.0	11.0	51.7
Jasper Pass	21A06A	5400	12/7	73	22.0	10.0	2.0	18.2
			1/2	60	24.0	29.0	19.0	44.6
			2/2	66	23.0	42.0	14.0	69.3
Marten Lake	21A09A	3600	12/7	52	16.0	6.0	2.0	15.0
			1/2	24	8.0	14.0	11.0	36.6
			2/2	33	11.0	34.0	14.0	55.4
Mt. Blum +	21A18a	5800	12/7	49	15.0	4.0	4.0	11.1
			1/2	36	14.0	18.0	11.0	33.1
			2/2	47	16.0	26.0	11.0	48.4
Panorama New	21A26	4300	2/1	Not Measured		38.5	7.5	48.7

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1963-1977 Average
* Average for Years of record

USDA-SCS-PORTLAND OREGON 1973.

SNOW DATA TO FEBRUARY 1, 1981 - APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	1977	Avg. #
BAKER RIVER (Cont.)								
Rocky Creek	21A12A	2100	12/7	30	9.0	3.0	0.0	3.3
			1/2	0	0.0	4.0	0.0	14.4
			2/2	6	2.0	13.0	0.0	24.7
Schreibers Meadow	21A10A	3400	12/7	28	8.0	4.0	1.0	8.6
			1/2	10	4.0	11.0	4.0	26.0
			2/2	8	3.0	22.0	2.0	41.0
S. F. Thunder Creek +	21A14A	2200	12/7	12	4.0	-	0.0	0.8
			1/2	0	0.0	3.0	0.0	6.0
			2/2	4	2.0	6.0	0.0	10.0
Watson Lakes	21A08A	4500	12/7	52	16.0	7.0	2.0	10.0
			1/2	11	4.0	14.0	10.0	29.4
			2/2	24	8.0	25.0	9.0	44.4
NOOKSACK RIVER								
Glacier Creek	21A23	3700	11/25	0	0.0	-	0.0	6.9
			12/28	0	0.0	-	0.9	7.4
			1/30	0	0.0	4.9	0.0	19.7
Panorama New	21A26	4300	2/1	Not Measured		38.5	7.5	48.7
O L Y M P I C P E N I N S U L A								
DUNGENESS RIVER								
Deer Park	23B04	5200	1/30	5	0.8	10.4	0.0	15.2
MORSE CREEK								
Cox Valley	23B14	4500	2/2	10.9	2.3	18.6	0.0	29.1
ELWHA RIVER								
Hurricane	23B03	4500	1/31	6.5	0.7	5.9	0.0	16.4

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1963-1977 Average

USDA SCS-PORTLAND OREGON 1973

PRECIPITATION STORAGE GAGES

Amount of precipitation in inches that has accumulated since the previous measurement.

BIG BOULDER CREEK

8/1/79	Recharge
11/1/79	1.5
12/1/79	2.9
1/4/80	18.2
2/1/80	5.5
3/1/80	5.8
4/1/80	11.3
5/1/80	1.8
10/1/80	Recharge
11/1/80	1.8
12/1/80	11.0
1/1/81	15.4

BUMPING RIDGE

10/1/79	Recharge
11/1/79	11.4
12/1/79	6.0
1/3/80	13.6
2/1/80	11.2
3/1/80	8.7
4/1/80	3.6
5/1/80	3.2
7/1/80	5.1
8/1/80	0.7
9/1/80	2.1
10/1/80	Recharge
11/1/80	0.3
12/1/80	12.7
1/1/81	11.4
1/31/81	0.4

CARNATION 15E

8/7/79	Recharge
9/1/79	0.64
10/2/79	3.84
11/1/79	7.89
12/4/79	9.37
1/4/80	27.90
3/4/80	21.30
4/3/80	13.42
5/1/80	7.03
6/5/80	5.32
7/1/80	4.26
8/4/80	1.50
9/6/80	7.88
10/2/80	13.42
11/7/80	23.64
12/2/80	39.62
1/6/81	59.85

CEDAR FALLS 4SE

7/31/79	Recharge
9/4/79	2.56
10/1/79	1.06
11/2/79	7.88
12/6/79	7.24
1/2/80	17.47
3/5/80	18.53
4/2/80	14.48
5/5/80	6.38
6/2/80	4.26
6/30/80	2.99
7/28/80	2.55
9/3/80	4.68
10/3/80	6.60
11/3/80	3.19
12/1/80	15.76
1/6/81	17.04

CEDAR FALLS 5SE

8/3/79	Recharge
9/5/79	2.13
10/1/79	0.42
11/2/79	5.76
12/3/79	2.98
1/3/80	15.97
3/5/80	14.06
5/2/80	12.36
6/2/80	4.49
7/1/80	3.19
7/29/80	0.64
9/3/80	3.62
10/3/80	3.41
11/3/80	1.49
1/6/81	22.15

CEDAR FALLS 7SE

8/3/79	Recharge
9/4/79	3.41
10/1/79	1.28
11/2/79	7.25
12/3/79	5.32
1/3/80	21.30
4/2/80	30.67
5/5/80	6.61
6/2/80	3.62
6/30/80	2.55
7/30/80	1.50
9/2/80	11.72
10/1/80	3.41

CEDAR FALLS 7SE (Cont.)

11/3/80	3.83
12/1/80	15.12
1/6/81	15.98

CEDAR FALLS 7SSE

8/3/79	Recharge
9/4/79	3.40
10/1/79	1.07
11/2/79	7.88
12/6/79	8.31
1/2/80	19.81
3/5/80	21.08
4/2/80	13.64
5/5/80	7.25
6/2/80	4.26
6/30/80	3.19
7/30/80	1.28
9/3/80	5.75
10/3/80	4.47
11/3/80	3.20
12/1/80	14.69
1/6/81	18.75

CEDAR FALLS 8SE

7/31/79	Recharge
9/4/79	2.55
10/1/79	0.64
11/2/79	6.18
12/3/79	3.83
1/3/80	17.04
3/5/80	15.55
4/7/80	10.86
5/2/80	3.20
6/2/80	4.05
6/30/80	2.98
7/29/80	0.64
9/3/80	4.05
10/3/80	4.04
11/3/80	1.92
12/1/80	13.21
1/6/81	14.05

CEDAR FALLS 10SE

8/3/79	Recharge
9/4/79	1.07
10/1/79	1.28
11/2/79	8.30
12/6/79	9.59
1/3/80	21.30

PRECIPITATION STORAGE GAGES (Continued)

CEDAR FALLS 10SE (Cont.)

5/5/80	40.68
6/2/80	4.26
6/30/80	3.41
7/30/80	0.64
9/2/80	6.18
10/3/80	4.26
11/3/80	4.47
1/6/81	34.08

CONSULTANT CREEK

8/7/79	Recharge
9/1/79	1.34
10/2/79	4.28
11/1/79	7.88
12/5/79	11.02
1/4/80	10.58
3/4/80	34.87
5/1/80	21.15
6/5/80	8.32
7/1/80	5.40
8/4/80	4.28
9/6/80	8.56
10/2/80	6.30
11/7/80	8.77
1/6/81	33.30

DRY CREEK

8/8/79	Recharge
9/1/79	1.35
10/2/79	4.72
11/1/79	8.10
12/4/79	8.10
1/4/80	24.52
3/4/80	20.02
4/3/80	12.83
5/1/80	7.42
6/5/80	7.20
7/1/80	4.04
8/5/80	3.38
9/6/80	10.35
10/2/80	5.85
11/7/80	8.78
12/2/80	15.76

FISH LAKE

6/27/79	Recharge
9/26/79	6.25
8/5/80	57.75
9/4/80	3.12

FROZEN MTN.

8/8/79	Recharge
9/1/79	0.45
10/2/79	4.51
11/1/79	9.67
12/5/79	11.48
1/4/80	31.50
3/4/80	25.66
4/3/80	15.52
5/1/80	8.10
6/5/80	5.62
7/1/80	4.96
8/5/80	2.70
9/6/80	10.80
10/2/80	6.52
11/7/80	11.26

HARTS PASS

10/24/79	Recharge
9/23/80	36.8

LESTER 5NNE

7/31/79	Recharge
9/4/79	3.41
10/2/79	1.07
11/2/79	5.33
6/4/80	57.93
7/1/80	4.05
7/28/80	1.28
9/2/80	6.60
10/1/80	3.41
11/4/80	4.26
1/7/81	28.76

LESTER 7NNW

8/1/79	Recharge
9/4/79	3.62
10/2/79	1.50
11/2/79	5.54
5/6/80	62.83
6/3/80	2.34
6/30/80	2.98
7/31/80	0.64
9/3/80	4.90
10/3/80	3.41
11/4/80	4.69
1/7/81	31.74

LESTER 8NNW

8/1/79	Recharge
9/4/79	3.19
10/2/79	1.71
11/2/79	5.54
12/3/79	5.75
1/3/80	21.72
5/6/80	32.17
6/3/80	2.34
6/30/80	2.77
7/31/80	0.21
9/3/80	4.68
10/3/80	4.26
11/4/80	4.05
1/7/81	30.67

LESTER 8N

8/1/79	Recharge
9/5/79	2.77
10/2/79	1.71
11/2/79	5.32
6/6/80	65.18
6/30/80	3.41
7/31/80	0.42
9/3/80	5.54
10/3/80	5.32
11/4/80	3.62
1/7/81	31.52

LESTER 10NNW

7/31/79	Recharge
9/4/79	4.04
10/1/79	0.86
11/2/79	2.98
12/3/79	9.37
1/3/80	22.36
3/5/80	18.96
5/2/80	15.76
6/6/80	4.48
6/30/80	3.19
7/28/80	0
9/3/80	4.90
10/3/80	5.12
11/3/80	3.62
12/1/80	15.55
1/7/81	17.69

PRECIPITATION STORAGE GAGES (Continued)

LESTER 11NW

8/1/79	Recharge
9/5/79	2.77
10/1/79	1.28
11/2/79	5.54
12/3/79	5.12
1/3/80	19.59
3/5/80	16.62
4/4/80	9.37
5/2/80	4.90
6/6/80	4.89
7/1/80	3.19
7/29/80	0.64
9/3/80	4.48
10/3/80	4.26
11/3/80	2.13
12/1/80	14.06
1/7/81	15.54

LYMAN LAKE

10/1/79	Recharge
11/1/79	6.3
12/1/79	2.6
1/4/80	16.2
2/1/80	9.2
3/1/80	6.6
4/1/80	1.1
5/1/80	9.3
6/1/80	2.1
8/1/80	0.4
9/1/80	5.4
9/29/80	4.3
10/1/80	Recharge
11/1/80	2.5

MIDDLE FORK TAYLOR

8/10/79	Recharge
9/4/79	2.13
10/1/79	2.34
11/5/79	9.38
12/1/79	4.90
1/3/80	20.02
3/5/80	22.58
5/2/80	16.41
6/2/80	5.96
6/30/80	3.41
8/1/80	2.98
9/2/80	5.75
10/3/80	4.90
11/3/80	6.18
12/1/80	12.36
1/6/81	17.68

MONTE CRISTO

11/2/79	Recharge
10/31/80	115.25

MORSE LAKE

10/1/79	Recharge
11/1/79	8.5
12/1/79	5.2
1/4/80	20.9
2/1/80	7.6

Battery Bad

MT INDEX

8/8/79	Recharge
9/1/79	0
10/2/79	5.18
11/1/79	8.78
12/5/79	9.68
1/4/80	28.12
3/4/80	22.50
5/1/80	22.95
6/5/80	6.98
7/1/80	5.18
8/5/80	3.15
9/6/80	10.57
10/2/80	6.98
11/7/80	10.58
1/6/81	40.50

NORTH FORK TAYLOR

8/10/79	Recharge
9/1/79	2.77
10/1/79	2.77
11/5/79	6.17
12/1/79	4.90
3/5/80	34.08
4/2/80	8.95
5/2/80	5.11
6/2/80	6.39
6/30/80	3.41
8/1/80	1.92
9/2/80	4.47
10/3/80	4.26
11/3/80	4.26
12/1/80	12.14
1/6/81	14.91

PARK CREEK RIDGE

10/1/79	Recharge
11/1/79	4.8
12/1/79	2.2
1/4/80	22.9
2/1/80	8.6
3/1/80	8.1
4/1/80	5.6
5/1/80	3.0
5/30/80	1.9
7/1/80	2.3
8/1/80	0.7
9/1/80	0.6
9/11/80	1.7
9/13/80	Recharge
10/1/80	0.7
11/1/80	1.6
12/1/80	14.0
1/1/81	16.0
1/31/81	3.0

PORT ANGELES 11S

8/20/79	Recharge
9/1/80	51.39

RUSTY CREEK

1/29/80	
2/27/80	1.0
3/27/80	0.70
4/25/80	0.30
5/28/80	0.50
6/26/80	2.75
7/29/80	1.0
8/26/80	0.5
9/25/80	2.38
10/27/80	0
11/25/80	1.62
12/23/80	3.25
1/28/81	2.75

SHERMAN PASS

9/27/79	Recharge
10/1/80	29.35

SPRUCE SPRINGS

Gage Vandalized

PRECIPITATION STORAGE GAGES (Continued)

SKYKOMISH 7½W

8/9/79	Recharge
9/1/79	0.42
10/2/79	4.05
11/1/79	9.59
6/5/80	111.40
7/1/80	4.68
8/6/80	2.98
9/6/80	10.22
10/2/80	8.52
11/7/80	12.99

SURPRISE LAKES

10/1/79	Recharge
11/1/79	4.5
12/1/79	6.3
1/4/80	20.4
2/1/80	14.5
3/1/80	15.0
4/1/80	36.1
10/1/80	Recharge
11/1/80	1.0
12/1/80	16.4

SWAUK PASS

Fall/1979	Recharge
12/26/79	7.87
1/24/80	2.25
2/26/80	4.50
3/25/80	2.25
9/30/80	Recharge
12/17/80	6.75
12/30/80	2.81
1/27/81	1.69

TAYLOR CREEK

7/30/79	Recharge
9/4/79	2.13
10/1/79	1.71
11/5/79	6.39
12/1/79	4.47
1/3/80	15.12
3/5/80	15.13
4/2/80	7.66
5/2/80	4.68
6/2/80	3.62
6/30/80	2.34
8/1/80	2.14
9/2/80	3.62
10/3/80	3.84
11/3/80	3.20
12/1/80	11.50
1/6/81	11.50

TROUGH # 2

10/1/79	Recharge
11/1/79	2.3
12/1/79	3.3
1/3/80	3.9
2/1/80	4.8
3/2/80	5.9
4/1/80	2.0
5/2/80	2.6
7/1/80	3.8
8/1/80	0.2
9/1/80	0.7
10/1/80	Recharge
11/1/80	1.1
12/1/80	3.9
1/1/81	6.3
1/30/81	2.8

UPPER WHEELER

1/5/80	
1/30/80	3.9
3/1/80	6.9
3/31/80	0.6
4/30/80	1.6
5/31/80	2.2
7/4/80	0.7
7/31/80	-0.95
8/28/80	0.05
10/1/80	1.15
10/31/80	0.6
11/28/80	4.6
12/30/80	7.8
1/28/80	2.2

YELLOW CREEK

11/1/79	Recharge
12/4/79	7.88
1/4/80	17.10
3/4/80	13.27
4/3/80	11.25
5/1/80	6.08
6/2/80	7.42
7/1/80	3.60
8/4/80	4.50
9/6/80	6.98
10/2/80	4.50
11/7/80	7.42
12/2/80	10.12
1/6/81	12.60

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
  Corps of Engineers
U. S. Department of Agriculture
  Forest Service
U. S. Department of Commerce
  NOAA, National Weather Service
U. S. Department of the Interior
  Bonneville Power Administration
  Bureau of Reclamation
  Geological Survey
  National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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